

TRAITÉ DE COOPÉRATION EN MATIÈRE DE BREVETS

PCT

RAPPORT PRÉLIMINAIRE INTERNATIONAL SUR LA BREVETABILITÉ

(chapitre I du Traité de coopération en matière de brevets)

(règle 44bis du PCT)

Référence du dossier du déposant ou du mandataire CP 61214	POUR SUITE À DONNER		Voir le point 4 ci-dessous
Demande internationale no. PCT/FR2005/000201	Date du dépôt international (<i>jour/mois/année</i>) 31 January 2005 (31.01.2005)	Date de priorité (<i>jour/mois/année</i>) 30 January 2004 (30.01.2004)	
Classification internationale des brevets (8 ^e édition, sauf indication d'une #dition ant#rieure) Voir les informations pertinentes dans le formulaire PCT/ISA/237			
Déposant CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)			

1.	Le présent rapport préliminaire international sur la brevetabilité (chapitre I) est établi par le Bureau international au nom de l'administration chargée de la recherche internationale selon la règle 44bis.1.a).																								
2.	Ce RAPPORT comprend un total de 9 feuilles, y compris la présente feuille de couverture. Dans les feuilles jointes, toute référence à l'opinion écrite de l'administration chargée de la recherche internationale doit être entendue, à la place, comme une référence au rapport préliminaire international sur la brevetabilité (chapitre I).																								
3.	Le présent rapport contient des indications relatives aux points suivants : <table style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Cadre n° I</td> <td>Base de l'opinion</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° II</td> <td>Priorité</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° III</td> <td>Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° IV</td> <td>Absence d'unité de l'invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Cadre n° V</td> <td>Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° VI</td> <td>Certains documents cités</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° VII</td> <td>Certaines irrégularités relevées dans la demande internationale</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Cadre n° VIII</td> <td>Certaines observations relatives à la demande internationale</td> </tr> </table>	<input checked="" type="checkbox"/>	Cadre n° I	Base de l'opinion	<input type="checkbox"/>	Cadre n° II	Priorité	<input type="checkbox"/>	Cadre n° III	Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle	<input type="checkbox"/>	Cadre n° IV	Absence d'unité de l'invention	<input checked="" type="checkbox"/>	Cadre n° V	Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration	<input type="checkbox"/>	Cadre n° VI	Certains documents cités	<input type="checkbox"/>	Cadre n° VII	Certaines irrégularités relevées dans la demande internationale	<input type="checkbox"/>	Cadre n° VIII	Certaines observations relatives à la demande internationale
<input checked="" type="checkbox"/>	Cadre n° I	Base de l'opinion																							
<input type="checkbox"/>	Cadre n° II	Priorité																							
<input type="checkbox"/>	Cadre n° III	Absence de formulation d'opinion quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle																							
<input type="checkbox"/>	Cadre n° IV	Absence d'unité de l'invention																							
<input checked="" type="checkbox"/>	Cadre n° V	Déclaration motivée selon l'article 35.2) quant à la nouveauté, l'activité inventive et la possibilité d'application industrielle; citations et explications à l'appui de cette déclaration																							
<input type="checkbox"/>	Cadre n° VI	Certains documents cités																							
<input type="checkbox"/>	Cadre n° VII	Certaines irrégularités relevées dans la demande internationale																							
<input type="checkbox"/>	Cadre n° VIII	Certaines observations relatives à la demande internationale																							
4.	Le Bureau international communiquera le présent rapport aux offices désignés conformément aux règles 44bis.3.c) et 93bis.1 mais pas avant l'expiration du délai de 30 mois à compter de la date de priorité (règle 44bis.2), sauf si le déposant a présenté une requête expresse à cet égard en vertu de l'article 23.2).																								

Bureau international de l'OMPI 34, chemin des Colombettes 1211 Geneva 20, Switzerland no de télécopieur +41 22 338 82 70	Date d'établissement du présent rapport 03 October 2006 (03.10.2006) Fonctionnaire autorisé <p style="text-align: center; font-weight: bold;">Beate Giffo-Schmitt</p> e-mail: pt03@wipo.int
---	--

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year) **See form PCT/ISA/210**

Applicant's or agent's file reference

CP 61214

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/FR2005/000201

International filing date (day/month/year)

31.01.2005

Priority date (day/month/year)

30.01.2004

International Patent Classification (IPC) or both national classification and IPC

C30B29/60, C23C16/26, C01B31/02

Applicant

CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/FR2005/000201

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐

This opinion has been established on the basis of a translation from the original language into the following language

_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☐

in written format

☐

in computer readable form

c. time of filing/furnishing

☐

contained in the international application as filed.

☐

filed together with the international application in computer readable form.

☐

furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/FR2005/000201

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims		YES
	Claims	1-12	NO
Inventive step (IS)	Claims		YES
	Claims	1-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims		NO
2. Citations and explanations:			
<p>1 Reference is made to the following documents:</p> <p>D1: US 2003/202930 A1 (SUN XUELLANG <i>ET AL.</i>)</p> <p>D2: MA R. <i>ET AL.</i> "CATALYTIC GROWTH OF CARBON NANOFIBERS ON A POROUS CARBON NANOTUBES SUBSTRATE" JOURNAL OF MATERIALS SCIENCE LETTERS, LONDON, vol. 19, no. 21, (2000-11-01), pages 1929-1931</p> <p>D3: US 2003/118815 A1 (RODRIGUEZ NELLY M <i>ET AL.</i>)</p> <p>D4: US 6 495 258 B1 (CHEN ZHENG <i>ET AL.</i>)</p> <p>D5: EP 0 913 508 A (CANON KK)</p>			
<p>2 INDEPENDENT CLAIM 1</p> <p>2.1 The present application fails to comply with the requirements of PCT Article 33(1) since the subject matter of claim 1 does not meet the requirement of novelty defined in PCT Article 33(2).</p> <p>Document D1 describes a method of forming carbon nanotubes by CVD using a gas mixture comprising ethylene, hydrogen and argon, inert gas, on a carbon fibre substrate with a silane-nickel aromatic catalyst at 800°C (D1: paragraph [026], claim 1).</p>			

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

The subject matter of claim 1 is therefore not novel.

- 2.2 In addition, document D2 describes a method of forming carbon nanotubes by CVD using a propylene/hydrogen gas mixture in the presence of nickel as catalyst, on a porous carbon nanotubes substrate at 750°C (D2: page 1929, column 1, line 15 to page 1930, column 1, line 2; figure 3).

The gas mixture is not diluted here with an inert gas, but a stream of nitrogen is used before the addition of the carbon source. This variation of the operating method is known, for example from D1.

The subject matter of claim 1 is therefore not novel.

- 2.3 In addition, document D3 describes a method of forming carbon nanotubes by CVD using an ethylene/hydrogen gas mixture in the presence of nickel, iron or cobalt as catalyst, on a porous silica or carbon fibre substrate at 600°C (D3: paragraphs [031]-[033], tables 1 and 2).

The gas mixture is not diluted here with an inert gas, but a stream of nitrogen is used before the addition of the carbon source. This variation of the operating method is known, for example from D1.

The subject matter of claim 1 is therefore not novel.

3 INDEPENDENT CLAIM 11

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/FR2005/000201

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

3.1 The present application fails to comply with the requirements of PCT Article 33(1) since the subject matter of claim 11 does not meet the requirement of novelty defined in PCT Article 33(2).

Document D1 also describes the products obtained by the method described in paragraph 2.1, these being formed from carbon nanotubes bonded to the carbon fibres of the substrate used (D1: paragraph [026], [034]; claim 1; figures 2-5).

The subject matter of claim 11 is therefore not novel.

3.2 Document D2 also describes the products obtained by the method described in paragraph 2.2, these being formed from carbon nanotubes bonded to the carbon nanotubes of the substrate used (D2: page 1929, column 1, line 15 to page 1930, column 1, line 2).

The subject matter of claim 11 is therefore not novel.

3.3 Document D3 also describes the products obtained by the method described in paragraph 2.3, these being formed from carbon nanotubes bonded to the silica or carbon fibres of the substrate used (D3: paragraphs [031]-[033]; tables 1 and 2; claims 1, 2 and 10).

The subject matter of claim 11 is therefore not novel.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/FR2005/000201

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

3.4 Document D4 describes products formed from carbon nanotubes bonded to the fibres of the substrate used (D4: column 4, line 55 to column 10, line 52; table 1; claims 1-6).

There is no indication in the present application that the products defined in D4 differ from those defined in claim 11 of the present application.

The subject matter of claim 11 is therefore not novel.

3.5 Document D5 describes products formed from carbon nanotubes bonded to a ceramic having a nanoscale/microscale structure (D5: examples 2 and 3; claims 1-10).

There is no indication in the present application that the products defined in D5 differ from those defined in claim 11 of the present application.

The subject matter of claim 11 is therefore not novel.

4 INDEPENDENT CLAIM 12

4.1 The present application fails to comply with the requirements of PCT Article 33(1) since the subject matter of **claim 12** does not meet the requirement of **novelty** defined in PCT Article 33(2).

Document D1 also describes the composite materials obtained by the method described in paragraph 2.1, these being formed from carbon nanotubes in a matrix of carbon fibres or steel fibres (D1: paragraph

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/FR2005/000201

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

[026], [034], claims 1, 7, 8; figures 2-5).

The subject matter of claim 12 is therefore not novel.

- 4.2 Document D2 also describes the composite materials obtained by the method described in paragraph 2.2, these being formed from carbon nanotubes created in a carbon nanotubes/resin matrix (D2: page 1929, column 1, line 15 to page 1930, column 1, line 2).

The subject matter of claim 12 is therefore not novel.

- 4.3 Document D3 also describes the composite materials obtained by the method described in paragraph 2.3, these being formed from carbon nanotubes bonded to the carbon or silica fibres encapsulated in a matrix (D3: paragraphs [031]-[033]; tables 1 and 2; claims 1, 2 and 10).

The subject matter of claim 12 is therefore not novel.

- 4.4 Document D4 describes composite materials formed from carbon nanotubes in a ceramic or metal fibre matrix (D4: column 4, line 55 to column 10, line 52; table 1; claims 1-6).

There is no indication in the present application that the products defined in D4 differ from those defined in claim 12 of the present application.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/FR2005/000201

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

The subject matter of claim 12 is therefore not novel.

- 4.5 Document D5 describes materials formed from carbon nanotubes in a ceramic matrix having a nanoscale/microscale structure (D5: examples 2 and 3, claims 1-10).

There is no indication in the present application that the products defined in D5 differ from those defined in claim 12 of the present application.

The subject matter of claim 12 is therefore not novel.

5 DEPENDENT CLAIMS 2-10

The claims do not contain any features which, in combination with the features of any one claim to which they refer, meet the requirements of the PCT in respect of novelty (PCT Article 33(2)).

6 INDUSTRIAL APPLICATION

The subject matter of claims 1-12 is considered to be industrially applicable and therefore meets the requirements of PCT Article 34(4).